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H. Failyer, J. G. Smith and H. R. Wade. The authors showed the composition of the different separates—clay, silt and sand. The amount of CaO, MgO, K₂O and P₂O₅ is greater in the finer separate—clay. The mechanical composition of two soils might be the same, and yet these soils might be very different chemically, and *vice versa*.

The meeting adjourned to meet at the Chemical Laboratory of the Johns Hopkins University, Baltimore, on Saturday, April 11, at 8 P.M., at which time Professor H. N. Morse addressed the members on "Osmotic Pressure." Professor Morse explained the construction and use of the various apparatus necessary in carrying on his researches. After adjournment the members were given the privilege of visiting Professor Morse's laboratory, where other apparatus was examined. A resolution was passed thanking Professor Morse for his paper, President Remsen for his hospitality, and to the owners of the copper and petroleum works for allowing the members of the society to visit the works. Over fifty members from Washington attended the lecture, at which the attendance was over eighty.

J. A. LECLERC,
Secretary

THE ONONDAGA ACADEMY OF SCIENCES

At the March meeting of the Onondaga Academy of Sciences, Principal John D. Wilson spoke of the "Geographic Influences in the Development of America." He described the form and structure of the continent, its eastern mountain barrier, the three important gateways through them, the character of the people entering by each, the favorableness of the New York entrance, and its importance in regard to location, climate and character of the people entering, and the effect of the favorable environment upon the people. All of these circumstances led him to prophesy that New York will ultimately prove the largest and most important city in the world.

The secretary, Philip F. Schneider, spoke of "The Formation of the Diamond." He described the occurrence of the peculiar cubic

carbon in the stony meteorites from Arva, Hungary and Novo Urie, Siberia, and in the iron meteorites from Youndegin, West Australia, and Smithville, Tennessee; also the subsequent discovery of diamonds in these and other meteoric irons, describing with special care the diamonds of the Cañon Diablo meteorite obtained by Foote, Huntington, Kunz and others. He next considered the various methods of producing the diamond artificially, speaking at length of the method so successfully employed by Moissan of utilizing the intense heat of the electric furnace and enormous pressure generated by the sudden cooling of molten iron, and of the experiments of Friedlander of stirring molten olivene with graphite and thus producing diamonds. The analogy between the artificial diamonds and their matrix and those of the meteorites strongly suggests a similar origin in nature. That diamonds will ultimately be proved to have been formed at great depth and under intense heat and pressure either in a magma of molten iron or of olivene is probable, although the careful development of this part of the lecture was deferred until the next meeting.

The following officers were elected:
President—John D. Wilson.
Vice-president—Charles W. Hargitt.
Secretary—Philip F. Schneider.
Corresponding Secretary—Franklin H. Chase.
Treasurer—Louise W. Roberts.
Librarian—Mrs. L. L. Goodrich.
Councillors—D. M. Totman and S. R. Calthrop.

F. H. CHASE,
Corresponding Secretary

DISCUSSION AND CORRESPONDENCE

ARE PENSIONS FOR COLLEGE TEACHERS A FORM OF SOCIALISM

I REGRET to see in SCIENCE of April 24, an expression of opinion by Professor J. McK. Cattell about the Carnegie Foundation for the Advancement of Teaching which seems to be based on evidence that will not stand the test of a careful examination. The principle involved is familiar to economic students, for it lies at the basis of a much

discussed theory of distribution. What, it is often asked, is the important change demanded by social progress? One answer is: a fairer distribution of wealth and more income to individuals. The other answer is: improve the conditions under which men live so that each generation starts on a sounder basis with better health and fairer conditions for work. Those who hold the first view talk of economic equivalents and contend that gains in any quarter are followed by losses in others, so that modified social conditions give no net gain to the worker except as they increase his income. If I should say to a man holding this view that the introduction of a new food or better sanitation would improve the condition of workmen, he would reply that the cheaper food would be followed by a rise in rent or by lower wages, so that no net economic advantage would remain. I might grant this and yet contend that the main benefit of the change was not the added income but the better health that workmen would enjoy under the new conditions. If trolley lines opened up a new residential section it would also be contended that the cost of transportation to this district and the rise of land values in it would make the expenses quite as high as if the workmen remained in their old houses. Even if this be true it is not a matter of indifference to the workman and his family whether they live in a suburban cottage or in a few back rooms in a crowded tenement district. The conditions under which people live, their health and their vitality, are of far more importance than their income.

Let me illustrate this principle by an application to the university of which I am a member. During recent years salaries have risen from 15 to 20 per cent, but the cost of living has risen much more rapidly, say from 20 to 40 per cent. I do not think it an overstatement to say that the salary of a professor twenty years ago would purchase in goods and services \$500 more than it will now. Measured in economic equivalents here is a distinct loss that should be the cause of deterioration. In fact, however, the very opposite has taken place in so marked a degree

that it creates a veritable revolution. This change is plainly due to the better conditions under which teachers work. Twenty years ago Pennsylvania had practically no environment, the instruction was drawn from teachers' heads, there was little effective intercourse, no stimulus that called forth the best efforts of teachers, and no objective tests by which the progress and failures of students could be measured. Now we have a modern plant with laboratories, libraries, museums, dormitories, pleasant lecture rooms and other modern conveniences. It is this environment that has counteracted the depressing effects of low salaries and has given a tone to both teacher and pupil which no mere increase of salaries could have effected.

Suppose, for example, a university with fifty teachers should offer either to pay \$10,000 a year for typewriters and similar helps, or to raise the salary of each teacher by \$200. I doubt if there is a teaching body in the country that would not take the increase of salary, spend the money as they or their wives pleased, and go on with old methods of teaching, writing letters and keeping records. And yet I doubt if there is a single well-informed professor who would not admit that this use of the money would be far less effective in raising university standards than would the environing changes that a staff of typewriters brings about. The difficulty with the most of us is that we will not pay out our own money to get better environing conditions or to free ourselves from routine self-degrading work. But when these conditions are given, the best of us respond to the invigorating stimulus of a good environment and do work of a kind and character that lifts the tone of the university and its scholarship to new levels. Standards are thus set and comparisons made which force the less vigorous and more indifferent into new forms of activity. Soon the whole university feels the throb of a new life, better traditions are formed, the student body catches the new enthusiasm and goes out with better preparation, more efficiency and a greater love of work. All these are due to changes in the environment of teachers and not to the increase of salaries. Income is a

matter of small importance when compared with the conditions under which work is done.

The Carnegie Foundation is to be regarded as one of these environing conditions, the improvement of which has done so much for American education during recent years. It gives security and freedom from worry for wife and child, the lack of which has forced many a professor to sacrifice good work to the need of meeting some unexpected outlay for which his regular salary fails to provide. Sickness, accident, life insurance and other extraneous burdens have been met by work that forced the teacher to do some toilsome unremunerative task such as writing reviews at \$2 a page, or hack work for publishers at similar rates. The pay for such work is usually not so high as could be obtained by ditch digging or street cleaning. I call to mind a friend who earned this extra cash by directing wrappers. He was secretary of a learned society that appropriated \$300 a year for this purpose and he could not let the money slip through his fingers even at the cost of descent to degrading routine and poor health. The university paid him \$5 an hour for its work; he earned his extras by working for ten cents an hour. Surely this is a fiasco calling for some environing change.

It also seems odd to me to call schemes for environmental improvement paternal and socialistic. The confusion of thought involved in these statements is due to not seeing clearly the difference between the provision which each age makes for its successors and the care and control which some individuals exert over their contemporaries. We can leave little to our descendants except better conditions, sound constitutions and a freedom to utilize the forces of nature and society upon which their daily lives depend. We make for them the conditions under which they work; the distribution of current income they must settle for themselves. Paternalism and socialism seek to control this annual recurring income and the activities of those who cooperate to create current wealth. Every scheme of social progress calls for a constantly improving environment; but every

scheme can not therefore properly be classed as socialistic and paternal. Is it paternalism for parents to give their children a sound constitution? Should their children at maturity be allowed to choose between health and the present worth of a good body, say \$20,000? Is the man who tries to buy his health with pills and nostrums superior to him whose health is a gift from his ancestors? Should universities say to professors, "you can have \$200 a year or the use of the library; \$1,000 a year or the use of a laboratory; \$500 a year or the advantages of a cultured society"? And should they say to students, "we will give you \$150 a year or the use of the dormitories and gymnasium, and \$100 a year or the right to associate with your teachers and fellow students"?

The correct view is that the environing conditions of a university are the gift of past generations to the present. They do not limit the freedom of the present generation. On the contrary, they vastly increase it. So too is the home an accumulation of benefits which past generations give to the present. And all society, to a less degree but in the same way after all, is creating changes which accrue to the benefit of succeeding ages. The inheritance of an improved environment is civilization, not socialism. To confuse environmental change with the social control which socialism seeks to establish is an error that only clear thinking can avoid: but when we do see the contrast it becomes apparent that Mr. Carnegie has wrought for the college teacher a new and higher environment which will give him more freedom, greater zeal and better opportunities to raise the standards and ideals of the young men it is his duty to instruct. Pensions do not differ in effect from lecture rooms, libraries, laboratories, and other environing conditions of university life. May each generation for ages to come produce more men who will add to the efficiency of teachers and universities by bettering the environing conditions of teacher and pupil.

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